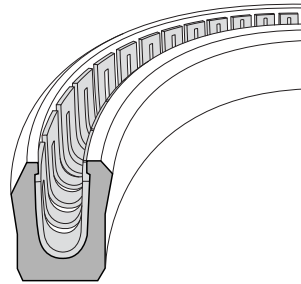


Piston Seals (Single Acting)

SP-11-2000, DK19

(Metric Size)

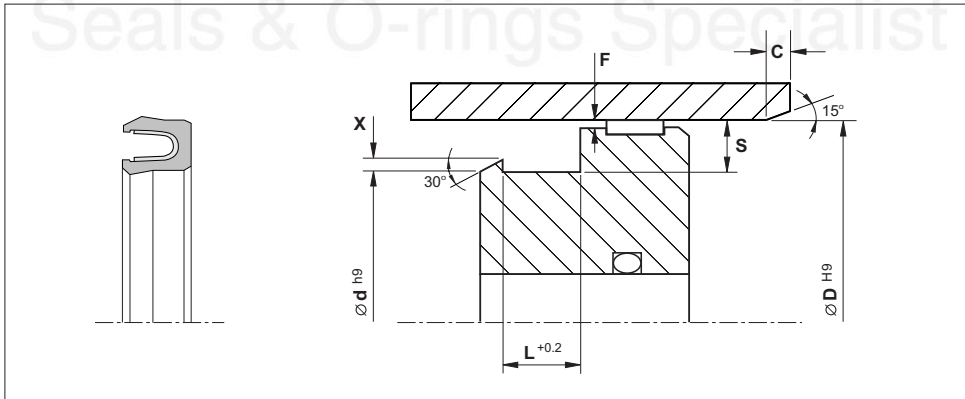


SP-11-2000, DK19

Material	Pressure (Bar)	Temp. (°c)	Speed (m/s)
PTFE+Stainless Spring	450	-150 +225	15

- Resistant to most fluids and chemicals.
- Low coefficients of friction.
- Can handle rapid changes in temperature.
- Stick-slip free.

Installation Recommendation



Surface roughness	Ra	Rt	Chamfers	
Sliding surface	≤ 0.3 μm	≤ 4 μm	S	C
Surface of housing	≤ 1.8 μm	≤ 10 μm	1.45	4.2
Sides of housing	≤ 3.0 μm	≤ 16 μm	2.25	4.7
			3.10	5.2
			4.70	8.2
			6.10	11.9

# PTFE Seal - 2000



## Installation Dimensions for grooves made for O-ring without back-up ring

Series No.	Bore Dia. D		Groove Dia. d	Groove Width. L	Radius r1	Step Height X Min.	Radial Clearance F max.*			
	Standard Range	Extended Range					20 Bar	100 Bar	200 Bar	400 Bar
2000	6 - 13.9	6 - 40.0	D - 2.9	2.4	0.4	0.4	0.20	0.10	0.08	0.05
2010	14 - 24.9	10 - 200.0	D - 4.5	3.6	0.4	0.6	0.25	0.15	0.10	0.07
2020	25 - 45.9	16 - 400.0	D - 6.2	4.8	0.6	0.7	0.35	0.20	0.15	0.08
2030	46 - 124.9	28 - 700.0	D - 9.4	7.1	0.8	0.8	0.50	0.25	0.20	0.10
2040	125 - 999.9	45 - 999.9	D - 12.2	9.5	0.8	0.9	0.60	0.30	0.25	0.12

## Installation Dimensions for grooves made for O-ring with one back-up ring

Series No.	Bore Dia. D		Groove Dia. d	Groove Width. L	Radius r1	Step Height X Min.	Radial Clearance F max.*			
	Standard Range	Extended Range					20 Bar	100 Bar	200 Bar	400 Bar
2200	6 - 13.9	6 - 40.0	D - 2.9	3.80	0.4	0.4	0.20	0.10	0.08	0.05
2210	14 - 24.9	10 - 200.0	D - 4.5	4.65	0.4	0.6	0.25	0.15	0.10	0.07
2220	25 - 45.9	16 - 400.0	D - 6.2	5.70	0.6	0.7	0.35	0.20	0.15	0.08
2230	46 - 124.9	28 - 700.0	D - 9.4	8.50	0.8	0.8	0.50	0.25	0.20	0.10
2240	125 - 999.9	45 - 999.9	D - 12.2	11.20	0.8	0.9	0.60	0.30	0.25	0.12

## (Metric Size)

Bore Dia. D	Groove Dia. d	Groove Width. L	Reference (For order processing)
6.0	3.1	2.4	
8.0	5.1	2.4	SP-11-2000-0080
10.0	7.1	2.4	SP-11-2000-0100
12.0	9.1	2.4	SP-11-2000-0120
14.0	9.5	3.6	SP-11-2010-0140
15.0	10.5	3.6	SP-11-2010-0150
16.0	11.5	3.6	SP-11-2010-0160
18.0	13.5	3.6	SP-11-2010-0180
20.0	15.5	3.6	SP-11-2010-0200
22.0	17.5	3.6	SP-11-2010-0220
25.0	18.8	4.8	SP-11-2020-0250
28.0	21.8	4.8	SP-11-2020-0280
30.0	23.8	4.8	SP-11-2020-0300
32.0	25.8	4.8	SP-11-2020-0320
35.0	28.8	4.8	SP-11-2020-0350

(Metric Size)

Bore Dia.	Groove Dia.	Groove Width.	Reference (For order processing)
D	d	L	
40.0	33.8	4.8	SP-11-2020-0400
42.0	35.8	4.8	SP-11-2020-0420
45.0	38.8	4.8	SP-11-2020-0450
48.0	38.6	7.1	SP-11-2030-0480
50.0	40.6	7.1	SP-11-2030-0500
52.0	42.6	7.1	SP-11-2030-0520
55.0	45.6	7.1	SP-11-2030-0550
56.0	46.6	7.1	SP-11-2030-0560
60.0	50.6	7.1	SP-11-2030-0600
63.0	53.6	7.1	SP-11-2030-0630
65.0	55.6	7.1	SP-11-2030-0650
70.0	60.6	7.1	SP-11-2030-0700
75.0	65.6	7.1	SP-11-2030-0750
80.0	70.6	7.1	SP-11-2030-0800
85.0	75.6	7.1	SP-11-2030-0850
90.0	80.6	7.1	SP-11-2030-0900
95.0	85.6	7.1	SP-11-2030-0950
100.0	90.6	7.1	SP-11-2030-1000
110.0	100.6	7.1	SP-11-2030-1100
115.0	105.6	7.1	SP-11-2030-1150
120.0	110.6	7.1	SP-11-2030-1200
125.0	112.8	9.5	SP-11-2040-1250
130.0	117.8	9.5	SP-11-2040-1300
135.0	122.8	9.5	SP-11-2040-1350
140.0	127.8	9.5	SP-11-2040-1400
150.0	137.8	9.5	SP-11-2040-1500
160.0	147.8	9.5	SP-11-2040-1600
170.0	157.8	9.5	SP-11-2040-1700
180.0	167.8	9.5	SP-11-2040-1800
190.0	177.8	9.5	SP-11-2040-1900
200.0	187.8	9.5	SP-11-2040-2000
210.0	197.8	9.5	SP-11-2040-2100
220.0	207.8	9.5	SP-11-2040-2200
230.0	217.8	9.5	SP-11-2040-2300
240.0	227.8	9.5	SP-11-2040-2400
250.0	237.8	9.5	SP-11-2040-2500
280.0	267.8	9.5	SP-11-2040-2800
300.0	287.8	9.5	SP-11-2040-3000
320.0	307.8	9.5	SP-11-2040-3200
350.0	337.8	9.5	SP-11-2040-3500

# PTFE Seal - 2000



(Metric Size)

Bore Dia.	Groove Dia.	Groove Width.	Reference (For order processing)
D	d	L	
400.0	387.8	9.5	SP-11-2040-4000
420.0	407.8	9.5	SP-11-2040-4200
450.0	437.8	9.5	SP-11-2040-4500
480.0	467.8	9.5	SP-11-2040-4800
500.0	487.8	9.5	SP-11-2040-5000

Select the material of seal ring and o-ring from Compounds for Fluid Technology (page 8)

<b>Order No.</b>	SP-11 - 2000 - 0060
Seal ring material code _____	
Series No. _____	
Bore diameter x 10 _____	

Seals & O-rings Specialist